**Project Overview:**   
Chronic pain affects 1 in 5 people of all ages in Scotland. [(Chronic pain )](https://paperpile.com/c/FVlTrf/BmQi) It can interfere with people’s daily lives and keep them from living it to the fullest. The management of chronic pain can reduce the disability and distress caused by chronic pain, allowing people to successfully cope with conditions such as arthritis, asthma, heart disease or migraines.

The aim of this project is to offer a digital platform which can be used by people living with chronic pain to better track and manage their conditions. The users will be able to create a secure profile and personalize it by choosing from a set of pre-defined assets important for them to track, such as sleep, exercise, diet, medication, etc.

Users will be able to input data themselves into the application and import data from various potentially relevant sources (other applications and portals such as Fitbit, GoogleFit, etc.), as well as view a visualized summary of their daily, weekly, or monthly data, as that might be useful both as a reference for their experience and for spotting patterns of behaviour and the assets that might trigger or help their conditions. The application will support personalized notifications, prompts and reminders (to input data, to view summary), as well as alerts with tips that might be useful for the different situation and conditions, such as reminders to drink water, stretch, meditate, etc.

**Preliminary List of Achievable Objectives:**  
**Basic Features:**

1. To design and build the backbone of the mobile application with login for users.
2. To design and build features that allow the user to select assets they consider important in managing pain, such as diet, exercise, mood, medication, pain, smoking, etc.
3. To design and build a feature that allows the user to track pain levels, their side effects and symptoms.

**Intermediate Features:**

1. To design and implement a feature that allows the users to view summary of their pain and symptoms over time.
2. To design and implement a feature that allows users to get personalized tip on how to cope with specific symptoms and pain.

**Advanced Features:**

1. To develop a method that can spot patterns of well-being or pain and the assets that trigger/cause them.
2. To develop a feature that alerts these patterns as notifications to the user and lets them set a personal goal connected to the noticed pattern, such as to drink more water, move more, meditate, etc.
3. To design and implement a feature that allows users to share information with friends and family.

**Survey of Related Work:**The survey of related work was carried out by looking at existing applications that aim to help people with chronic pain better manage their conditions, and explored what they track and offer. Three of these applications stood out the most, as they all separately contain important and useful features.

*MyPainDiary* - an application that makes it easy to track your pain and symptoms. Allows customization of specific needs, such as pain type and location, fatigue, food and beverages intake, exercise, and allows records of unlimited data. Keeps history in the form of a colour-coded calendar. Incorporates tracking weather-related symptoms and pains.

*Curable* - a web-based application that can be used both as a mobile application and as a web page, accessible from your personal computer or a tablet. The application creates a user profile using a friendly chat bot, which gathers information about your medical history, habits and chronic pains. Curable is an online psychology program that focuses on helping their users cope with chronic pain using a biopsychological approach.

*ManageMyPain* - a mobile application designed to helps people suffering from chronic pain, their symptoms and provide evidence of their pain to their doctors. The application tracks user’s pain and creates evidence-based reports for diagnosis, treatment and claims.

**Overview of Methodology:**

The project specifications will be initially taken from the project proposal and the scope will be refined during discussion with the clients – two specialists on the topics of chronic pain and management. An agile methodology will be followed throughout the development of the application, with a product backlog created at the start of the project during analysis and design. The development will be carried out in 2-week sprints, and new features will be brought into each sprint to be designed, developed and tested. Both unit and integration tests will be carried out for each new feature immediately after implementation. Items in the product backlog might be altered of redesigned during the development. The report will be written over time during the development of the application.

**Evaluation:**

The system will be evaluated by potential users of the system, who will be asked to complete a questionnaire after a week of using the fully developed application. The users will be divided into two focus groups - one that evaluates usability (friend and coursemates) and other that evaluates is the application is useful for tracking their condition (people living with chronic pain). All potential users will be recruited by general emails, which allow them to sign up for the evaluation process voluntarily. Main subject points will be usability, ease of learning, user satisfaction and design.

**Initial Project Plan:**

**22 October - 12 November:**

- Research in the field of chronic pain management, meetings with experts in the field, refinement of client requirements.

- Investigation of suitable technology to use during the project development in terms of platform, language and VCS.

**12 November - 3 December:**  
- Requirements analysis, brief design of the application’s architecture.   
- Further reading on technologies to use.

**3 December - 7 January:**

- Build skeleton app prototype.   
- Implementation of basic functionality, such as user login and asset management.

**7 January - 1 March:**

- Continued implementation of intermediate and potentially advanced features.

**1 March - 8 March:**

- User Acceptance testing and evaluation will be carried out.

**9 March - 25 March:**

- Results from the evaluation and testing will be analyzed and improvements will be made where needed.

- Completion of the report for submission.

- Final submission.

**Marking Scheme Chosen:**

The project will be assessed following the marking scheme for a software development-based project as a large focus of the project is the development of a software system. The marking scheme is as follows:

* Product: 50%  
   - design: 10%  
   - implementation: 25%  
   - verification and validation: 10%  
   - documentation: 5%
* Process: 15%

includes background, methodology, analysis and requirements

* Results and Evaluation: 10%
* Report Presentation: 10%
* Student Performance: 10%

[“Chronic Pain.” n.d. Accessed October 23, 2018.](http://paperpile.com/b/FVlTrf/2tVS) <https://www.nhsinform.scot/illnesses-and-conditions/brain-nerves-and-spinal-cord/chronic-pain>[.](http://paperpile.com/b/FVlTrf/2tVS)